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Medicine

HYPERCALCEMIA DURING LANGERHANS HISTIOCYTOSIS: A CASE OF PRIMARY HYPERPARATHYROIDISM

Saloua ELAMARI	Department of Endocrinology, Diabetology, Metabolic Disease and Nutrition, Mohammed VI University of Health Sciences [UM6SS], 82403, Casablanca, Morocco
Zineb BASRI	ENT Department, Head and Neck Surgery, Cheikh Khalifa International University Hospital, Mohammed VI University of Health Sciences [UM6SS], 82403, Casablanca, Morocco
Said ANAJAR	ENT Department, Head and Neck Surgery, Cheikh Khalifa International University Hospital, Mohammed VI University of Health Sciences [UM6SS], 82403, Casablanca, Morocco
Soukaina LAIDI	Department of Endocrinology, Diabetology, Metabolic Disease and Nutrition, Mohammed VI University of Health Sciences [UM6SS], 82403, Casablanca, Morocco
Nejwa BENSLIMA	Department of radiology, Cheikh Khalifa International University Hospital, faculty of medicine, Mohammed VI University of Health Sciences [UM6SS], Casablanca, Morocco
Meryem AHNACH	Department of radiology, Cheikh Khalifa International University Hospital, faculty of medicine, Mohammed VI University of Health Sciences [UM6SS], Casablanca, Morocco
Imane MOTAIB	Department of Endocrinology, Diabetology, Metabolic Disease and Nutrition, Mohammed VI University of Health Sciences [UM6SS], 82403, Casablanca, Morocco
Asmaa CHADLI	Department of Endocrinology, Diabetology, Metabolic Disease and Nutrition, Mohammed VI University of Health Sciences [UM6SS], 82403, Casablanca, Morocco

ABSTRACT Histiocytosis is a benign pathology caused by macrophage proliferation leading to granulomatous deposits in different body tissues. Hypercalcemia is a biological abnormality described during Histiocytosis, resulting from several mechanisms. We present a case of a patient followed for Cutaneous Histiocytosis who manifested with hypercalcemia during her follow up. The serum electrolytes labs along with the parathyroid hormone profile confirmed that it is hypercalcemia secondary to a primary hyperparathyroidism. Morphological examination revealed a parathyroid adenoma successfully operated. The association of primary hyperparathyroidism with histiocytosis has rarely reported in the literature to our knowledge. The observation encourages us to explore the phosphocalcic balance in front of hypercalcemia in a patient with granulomatosis and not to stop at the classic mechanisms of hypercalcemia during these pathologies.

KEYWORDS :

Introduction:

Langerhans histiocytosis is a macrophagic proliferation causing granulomatous deposits in different tissues including bones and skin, causing multi-systemic, benign but highly recurrent condition. The prognosis strongly depends on the degree of its extension and the involvement of the different organs [1]

The occurrence of hypercalcemia during histiocytosis has been reported in the literature, the mechanisms explaining these biological abnormalities are various [2-3].

We report a clinical case of a patient followed for Langerhansian histiocytosis with cutaneous localization. A hypercalcemia discovered on her biological assessment reveals a primary hyperparathyroidism.

Case report:

This is a 45-year old patient, diabetic for 5 years, obese with a body mass index of 42 kg/m.

Skin localization for histiocytosis, with several skin lesions of different ages ulcerated with a yellowish bottom, and hemorrhagic spike, with yellow fibrinous coating, and necrotic beaches, the lesions rest on erythematous skin with a fibrosis of retractile scar appearance on the periphery sitting at the level of the outer face of the right high.

The patient has neither other localizations of histiocytosis including bone. Nor polyuro-polydipsic syndrome. The patient was treated with methotrexate and vincristine-based chemotherapy, with good response to treatment.

During follow-up the patient experienced hypercalcemia 122mg/L, albuminemia 40 mg/L, hypo phosphoremia 20.6 mg/L, 25 [OH] Vitamin D2, D3 < 3ng/ml. The parathyroid hormone intact at 354 ng/L. PTH like less than 13.3 pg/ml, calciuria of 24h: 120 mg/24h. Phosphaturia of 24h: 130 mg/24h

The balance sheet is therefore in favor of a primary hyperparathyroidism. No sign of multiple endocrine neoplasia.

A cervical MRI revealed a nodular formation of the right lower parathyroid lodge, in hypersignal T2, iso signal T1, measured at 11.7 x 10.4 mm [Figure 1]. The MIBI scan could not be performed. The impact assessment of primary hyperparathyroidism showed preserved renal function and no osteopenia at osteodensitometry.

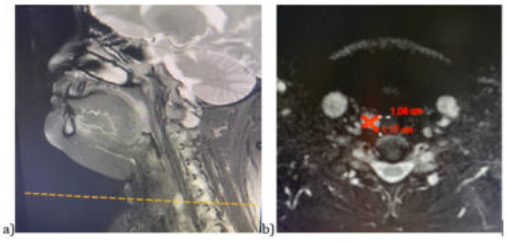
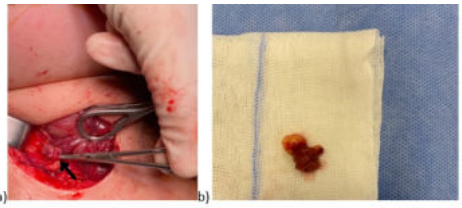


Figure 1: Magnetic resonance imaging showing the left lower parathyroid adenoma, sagittal section (a) and cross-section (b)

The surgical indication was given according to the age of the patient and the serum calcium level which is more than 120 mg/L (Figure 2) .

We dosed the PTH at induction, then 20 minutes after the resection of the adenoma. We noted a drop of more than 50% in the initial PTH [53 versus 996 pg/ml]. The surgical follow up was simple. No attacks of tetany. No stigmas of hungry bone syndrome.

Figure 2: a)Intraoperative image showing right inferior parathyroid adenoma b) Adenoma after resection



The anatomical pathology study, shows a uniform proliferation circumscribed by a thin fibrous capsule, consisting of a majority of main cells of slightly increased size, with a regular rounded nucleus with clear cytoplasm or weakly eosinophilic, to these cells, are associated some oncocytic cells. These cells are arranged in diffuse ranges, sometimes in nests or spans within a richly vascularized slender stroma: appearance in favor of a right parathyroid adenoma of 1.2 cm, encapsulated.

Discussion:

Langerhans histiocytosis is a rare pathology, often predominated in children and adolescents. It is characterized by a proliferation of cells of the reticuloendothelial system. Its incidence has been estimated at 1.08/200,000 children under 15 years of age with a prevalence of 1/50,000. Adult disorders are much rare, with particular locations, including the lung in young smokers. [1]

It is a condition characterized by a proliferation in different tissues of dendritic cells belonging to the Langerhans cell line and expressing the antigenic markers CD1a and S100 protein. [2] Its physio pathological mechanism is still unknown. Clinical presentations are very diverse, ranging from a single self-limiting bone injury to a life-threatening, multi-organ severe form. In order of frequency, the organs most often affected are bones, skin, lymph nodes, external ear canals and mastoids, bone marrow, liver and spleen, lung, post pituitary gland [diabetes insipidus] and digestive tract. [1]

The association with hyper calcemic is extremely rare, scarcely described in the literature. Its mechanism can be mediated by several mechanisms:

- A high level of 1.25 [OH] vitamin D2, D3: described in several granulomatous diseases such as sarcoidosis, tuberculosis, disseminated candidiasis, silicone-induced granuloma and histoplasmosis. The conversion of 25[OH] D to 1,25[OH] vit D. is not regulated by the kidneys and depends on the substrate of 25 [OH] vit D [3,4].
- The production of bone-absorbing cytokines such as interleukin-1 and prostaglandin E2, secreted by Langerhans cells in vitro. The secretion also of PTH-related protein or PTH like can be responsible for malignant hypercalcemia. [5-6]
- The role of treatment of Langerhansian histiocytosis, namely vinblastine, has been described. The mechanism is still poorly elucidated, but this may be due to a destruction of epithelial cells, and thus the release of cytokines, namely IL1, IL8, which will be responsible for an increase in blood concentrations of TNF-alpha and IL6 and thus a stimulation of bone destruction mediated by osteoclasts. [7]

Our patient received chemotherapy, including methotrexate and vincristine, without vinblastine, her biological assessment was in favor of primary hyperparathyroidism, the PTH like dosage was negative, standard X-rays do not show signs of bone resorption.

The finding of hypercalcemia in a patient with histiocytosis or granulomatosis in general should lead to a biological exploration in search of an etiology other than granulomatosis.

Primary hyperparathyroidism associated with histiocytosis has not been described in the literature before. It is a curable cause of hypercalcemia. The pathologies of endocrine glands usually observed during Langerhansian histiocytosis are diabetes insipidus, and anterior pituitary insufficiency by infiltrative mechanism. [8]

Conclusion:

Reporting this observation encourage us to explore hypercalcemia in patients with granulomatosis. Hypercalcemia during hystiocytosis can be of several origins, including primary hyperparathyroidism. Stopping at the diagnosis of hypercalcemia accompanying the disease can lead to serious consequences for the patient.

Figures:

Figure 1: Magnetic resonance imaging showing the left lower parathyroid adenoma, sagittal section (a) and cross-section (b)

Figure 2: a) Intraoperative image showing right inferior parathyroid adenoma b) Adenoma after resection

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